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ABSTRACT

Too often building facilities use yesterday's materials and methods to solve yeaterday's educational problems. The solution is to use newly available technologies to build facilities that will respond to changing patterns in education and reduce the frustrating amounts of time and money lavished on each project. The most important consideration today in planning educational spaces is that their structure, form, and content should provide the greatest latitude for future evolution and change -- an environment rather than a building -- a structural/mechanical enclosure that has an educational landscape within. The true designers of such an educational environment will be those who are to teach and learn within it. (Author)

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ENCAPSULATED CAMPUS: BETTER BUILDINGS FOR FEWER BUCKS.

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IN THE BEGINNING

In our present economy, it may be that the only possible way to save money on an educational building would be to build it in some location where it never rains, the sun never sets, and the temperature always hovers somewhere between 65 and 75 degrees. Thus freed from the necessity of having to build a building at all, by

properly arranging furniture upon the landscape I have just described, we could not only provide an extremely economical educational facility, we would be providing one with the capability of magnificent response to educational change.

Although this seems a radical approach to educational facilities planning, it may be, given the high cost of conventional building, the time involved in planning and construction, and the high probability of continued change in education, that something radical is in order. I'd like to convince you that such a solution is possible right now, that it can be built not just at the mythical location I've just described, but on your own campus, and it represents an attitude which does address itself to the problems we face in providing facilities to meet a changing

need.

There is a well-worn but durable architectural adage to the effect that "the solution lies in the statement of the problem,"- an abbreviated way of saying that if the problem can be identified and stated in simple terms, you're well on your way toward a solution to that problem.

Simply stated, I see the problem is that we are too often building facilities using yesterday's materials, by yesterday's methods, to solve yesterday's educational programs.

Simply stated, I see the solution is to build using newly available technologies, facilities which will respond

to changing patterns in education, and which by their very nature also respond to the sometimes frustrating amounts of time and money we now must lavish on each project.

EDUCATIONAL CHANGE

Clark Kerr has said that "the test of the modern university is how wisely and how quickly it adjusts. The great universities of the future will be those which adjust rapidly and effectively to change." There seems little question that between now and 1985, our colleges and universities will have more changes to make, more major issues to confront, more problems to solve, more demands to meet, than in any comparable period in their history.

For those of us born in the 20's/30's and before, change came as a result of an evolutionary process; change based on population growth, increased production, the shift from an agricultural to an industrial economy. To children born in the '40s and '50's, those now in our colleges and universities, one of the few constants during their lifetimes has been constant change. If we chart the various barometers of change; population, production, pollution, information storage and retrieval, technology, communication, transportation, income, and to this list some of you may want to add our ever increasing national debt, we begin to picture change as the revolutionary process it has now become.

Let's look a bit more closely at some of the other "change makers" which are either upon us now or are fairly predictable.

THERE WILL BE MORE STUDENTS TO SERVE:

Today, with 7.5 million students in public and private colleges, it is obvious that major adjustments will have to be made to accommodate the 11 million students expected by 1980. Much of this enrollment increase will be the result of the concept that any student who successfully finishes high school is entitled to either two or four years of additional education on a college level. Recently, the City University of New York admitted a freshman class of 35,000 students, up 15,000 from the previous fall. Chancellor Dr. Albert H. Bowker conceded that the

resulting atmosphere was far from conducive to the pursuit of knowledge. "We managed to provide the classrooms one way or another this fall," he says, "but we don't have sufficient space for either faculty or students. Fortunately, we've had good weather. I hate to think what will happen when everybody comes inside."

There have been estimates that by 1985 in the area within a 50-mile radius of New York City there would be an additional half million to 600,000 students entitled to college admission. Assuming the maximum size for a college to be what?, 10,000?, 20,000/?? then we could project, in the tri-state area around New York City alone, a need for twenty-five to thirty new college centers.

Where? How?

THERE WILL BE INCREASED AVAILABILITY AND USE OF ADVANCED FORMS OF EDUCATIONAL TECHNOLOGY. Early adventures in educational technology; the use of audio-visual materials, language labs, educational television, and even flexible scheduling, all came without the benefit of a great amount of research into the process of learning, and tended to be quite inflexible and expensive. These are now being supplemented by educational technology which is applying the findings of behavioral psychology to the design of instruction so as to make it more responsive to the learning needs of individual students. With the help of this advanced, flexible and inexpensive educational technology, we may actually begin to realize the rhetoric that has prevailed

in education for the last fifty years. This means a curriculum attuned to actual needs, a student centered approach stressing learning rather than teaching, one that recognizes and exploits individual differences instead of trying to mold all to the same requirements.

THERE WILL BE MAJOR SHIFTS IN EMPHASIS.

The following is a description of the educational goals of one college:

"The task of the educational program is to enable each person to pursue individual needs and aspirations throughout his life as an independent learner and researcher - self-motivated and directed, assisted by all the people around him and with the help of all available college and community resources. Education then becomes the

responsibility of the individual and the total community with the college functioning as an integral part of the whole environment.

"The program will be open-ended and comprehensive. Individual differences will not only be recognized but program emphasis will be concentrated on these differences, allowing each student to advance at his own pace, competing only with himself in a flexible time arrangement which eliminates pressures of traditional time blocks or sequences.

"Emphasis will be on problem-solving and research instead of on fact-finding and storage. Encouraged to explore and experiment, to seek more than one way to 'skin a cat,' students and teachers will no longer be 'afraid to have the wrong answer.'

"The program will make opportunities available for all to be involved in situations which combine classroom experiences with exposure to the world of work. The program will be based on clear objectives stated in terms of desired changes in students rather than in terms of hours in class, days in school, etc."

"Fine," you're now saying, "Just put a roof over my head as fast as you can and I'll make whatever changes are required over the next few years as my new programs evolve." You've missed the point; if we all accept Clark Kerr's hypothesis that the most successful universities will be those which can most rapidly adjust to change, then I'll say that the most successful educational buildings will have to be structured to do the same.

The approach I'd like to expose to you today discards all of the solutions for the problems of the past, - it relies heavily on technologies which were not available a few years ago. It provides first an environment rather than a building, and second an educational landscape within that environment which can be constructed within this weather controlled shell with obvious savings in time and money, and which provides a framework for change long after the architect has departed. In the long run then, the true designers of this educational environment will be those who will teach within it and even more important, those who will learn within it.

ARCHITECTURAL RESPONSE

William Birenbaum makes a plea for new college building standards stressing impermanence rather than permanence and endurance, as a way of accommodating the reality of constant educational change. He states, "... No collegiate facility should be financed or built to endure for more than a decade in its original form. The future educational enterprise should be housed in tents, the best tents an advanced technology can produce, tents which can quickly be put up or taken down, moved or altered. The concept of the tent carries with it novel planning and aesthetic possibilities, and it also corresponds to what is in fact going on within the realms of knowledge."

Stated another way, the most important consideration today in planning educational spaces is that the structure, the form, and the content provide the greatest lattitude for future evolution and change.

Since we can't move our campus to the mythical utopia I have previously described, which frees us from the necessity of a building, the first requirement will be to get in out of the rain. While Dr. Birenbaum suggested "tents," we need only to look to technology for other possible solutions. We're housing baseball teams and 747s in structures which could serve us well,and every

few years a World's Fair reminds us that there are endless inexpensive ways to enclose space.

David Geiger with the U.S. Pavillion at Osaka last summer gave us a structure which comes very close to the tent Dr. Birenbaum describes, and which can enclose unheard of areas at very low cost. Within this structure, we will provide the electro-mechanical systems both to heat, cool, and light the space and to provide the framework for our educational landscape.

Freed by the enclosure of the necessity of resisting wind and rain, the elements from which the landscape is constructed can be as light and movable as function allows. Faculty and students could "contract" for space based on specific and ever changing needs and the duplication of uniformity provided by many present facilities would be replaced, within our matrix, by the constant

organization and reorganization of educational diversity.

Movable walls and floors, the cabinets and furniture which form the landscape would be issued from storage when needed. When we've crossed some of the technological thresholds upon which we're now poised, innovation and change will be even further facilitated. Cassettes, carrels and earphones will provide individualization and isolation, walls of ultrasonic sound and holographic projection will be switched on and off at will and the entire landscape will be carpeted with a flooring material which will carry both electrical power and low voltage input to media systems signal and control throughout the building.

While all this sounds a little like H. G. Wells or

George Orwell, the technology for the systems I've described does exist, and cost studies of a structural/ mechanical enclosure and the educational landscape within done for our firm 18 months ago has proved to us that we have at this point "nothing to fear but fear itself."

SUNY Chancellor Samuel B. Gould has said; "Every college and university must begin to think through systematically to some sort of conclusion the kind of society it is eager to see emerge over the years. It must determine at the same time what place it has in the building of such a society. During the next 30 years and particularly the next decade, the university will probably be coerced into moving toward a structure appropriate to the society of which it will be a part. This coercion will create a novel kind of university, unrecognizable and perhaps even unthinkable to us today."